

REMARKS

The Office Action dated October 18, 2007 has been received and carefully noted. The above amendments to the 1-20 and new claims 21-23, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-20 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Claims 21-23 are newly added. No new matter has been added and no new issues are raised which require further consideration or search.

The Office Action indicated that claims 17-18 have been allowed and claims 10 and 16 contain allowable subject matter. Applicants wish to thank the Examiner for the allowance of these claims. However, claims 1-16 and 19-23 are respectfully submitted for reconsideration.

As a preliminary matter, Applicants submit that the Office Action mailed on October 18, 2007 is incomplete for failing to address all of the claim limitations of claims 13 and 20. Page 12 of the Office Action addresses claims 13 and 20 as being "obvious...for the same reasons and motivation as applied to claims 1, 3 and 7." However, claims 13 and 20 recite "a facial texture bit map" being generated and claims 1, 3 and 7 do not recite a "a facial texture bit map." Accordingly, all of the claim limitations have not been addressed by the Office Action and therefore finality of the Office Action was issued prematurely. Withdrawal of the finality of the Office Action is respectfully requested.

Claims 1-3, 5-9 and 11-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over Usui et al. (JP404242106A) in view of Mack et al. (U.S. Patent No. 6,377,700), Teitelbaum (U.S. Patent No. 5,872,834) and further in view of Picone et al. (U.S. Patent No. 5,293,452). The Office Action took the position that the combination of the above four references teach all of the subject matter recited in the claims. This rejection is respectfully traversed for at least the following reasons.

Claim 1, upon which claims 2-12 are dependent, recites an apparatus that includes at least one camera directed toward a user's face and configured to record at least two still images of a user from at least first and second angles of view, a memory configured to store user profile information relating to authorized users of a system, and a processor connected to said at least one camera. The processor is configured to process the still images obtained by said at least one camera and to generate a 3-dimensional model of the user's face, and to compare the generated model with the stored user profile information to determine whether the user is authorized to access the system, the processor includes an access device configured to grant access to the system when the generated model matches the profile information of one of the authorized users stored in the memory, thereby indicating recognition and authorization of the user, and an updater configured to update the profile information of the one of the authorized users with the generated model after each grant of access by the access device such that the updated profile information comprises an average of the generated model and the previously stored profile information.

Claim 13, upon which claims 14-16 are dependent, recites an apparatus that includes at least one charged coupled camera configured to obtain at least two still images of a user's face from at least two different predetermined angles of view and to obtain at least one still image of the user's face, a memory configured to store user profile information relating to authorized users of a system, and a processor. The processor is configured to connect to the at least one charge coupled camera and said light source to generate a 3-dimensional model of the user's face using the at least two still images, and to generate a facial texture bit map of the user's face using the at least one still image, the processor is configured to compare the 3-dimensional model and the facial texture bit map to the stored user profile information contained in the memory and to access the system when the generated 3-dimensional model and facial texture bit map match a user profile stored in the memory.

Claim 17 recites a method that includes obtaining, by a mobile apparatus, at least two 2-dimensional still images of a user from at least two different angles of view, sending the images to a server over a network, generating, by the server, a 3-dimensional model of the user's face from the obtained images, determining, by the server, the user's facial shape using the generated 3-dimensional model, sending the 3-dimensional model and the user's facial shape to the mobile apparatus. The method further includes comparing, at the mobile apparatus, the determined facial shape with profile information stored in memory, the profile information comprising data relating to the facial shape of

authorized users, and determining, at the mobile apparatus whether the determined facial shape matches the profile information stored in the memory.

Claim 20 recites an apparatus that includes obtaining means for obtaining at least two still images of a user's face from at least two different predetermined angles of view and to obtain at least one still image of the user's face, storing means for storing user profile information relating to authorized users of a system, and generating means connected to said at least one CCD camera and said light source, for generating a 3-dimensional model of the user's face using the at least two still images, and for generating a facial texture but map of the user's face using the at least one still image, said generating means comparing the 3-dimensional model and the facial texture bit map to the stored user profile information contained in said storing means, and for accessing to the system when the generated 3-dimensional model and facial texture bit map match a user profile stored in said storing means.

Claim 21 recites an apparatus that includes recording means directed toward a user's face and for recording at least two still images of a user from at least first and second angles of view, storing means for storing user profile information relating to authorized users of a system, and processor means connected to said at least one recording means for processing the still images obtained by said at least one recording means. The processing means further performing generating a 3-dimensional model of the user's face, and for comparing the generated model with the stored user profile information for determining whether the user is authorized to access a system, the

processing means comprising an access granting means for granting access to the system when the generated model matches the profile information of one of the authorized users stored in the storing means, thereby indicating recognition and authorization of the user. The processing means for including updating means for updating the profile information of the one of the authorized users with the generated model after each granting of access by the access granting means such that the updated profile information comprises an average of the generated model and the previously stored profile information.

Claim 22 recites an apparatus variation of claim 17, and claim 23 recites a means-plus-function variation of claim 17.

As will be discussed below, the combination of Usui, Mack, Teitelbaum and Picone do not teach the subject matter recited in the amended claims.

Usui is directed to a face recognizing apparatus. The image is picked up with a three-dimensional shape measuring device 11. Figure 2 illustrates cameras facing an image of a face. There are two cameras used to take images 112 and 113.

Mack is directed to capturing stereoscopic images. Mack further describes creating three-dimensional (3-D) models of real objects, where a multitude of images of real objects are taken from different positions to exploit the differences of the object's projections. See col. 2 lines 40-47 of Mack. The two or more images (stereoscopic images) are processed into 3-D models.

Teitelbaum is directed to a telephone with a biometric sensor. The biometric signal derived therefrom, is used to identify an individual using certain telephone

equipment. A user's identity is authorized during an attempt to access the telephone equipment, and to determine if the user is authorized to access a system.

Picone is directed to voice log-in using spoken voice samples for voice recognitions. Profile information of the authorized users may be updated after each grant of access such that the updated profile information comprises an average of the generated model and the previously stored profile information.

Applicants that none of the above references teach or suggest,

“a processor to generate a 3-dimensional model of the user's face and to generate a facial texture bit map of the user's face using the at least one still image of the user's face, and to compare the generated model and the facial texture bit map with the stored user profile information to determine whether the user is authorized to access the system”, as recited, in part, in amended claim 1. (Emphasis added)

The Office Action contains an admission (see page 10 of the Office Action) that none of the references Usui, Teitelbaum and Picone disclose generating a user's “facial texture.” The Office Action then proceeded to describe Mack as curing this deficiency of Usui, Teitelbaum and Picone with respect to claim 7. Applicants submit that the Office Action's alleged interpretation of claim 7 and the term “facial texture” is insufficient to support the rejection of claims 13 and 20, which claim 20 recites, in part, “generating a facial texture bit map of the user's face using the at least one still image.” (Emphasis added)

A “facial texture bit map” is not taught by any of the above references and is not addressed by the Office Action. Therefore, newly amended independent claim 1,

independent claims 13, 20 and new independent claim 21 are allowable over references Usui, Teitelbaum, Picone, and Mack. In addition, claims 17-18 have been allowed and new independent claims 22-23 are respective apparatus and means-plus-function variations of independent claim 17 and should be allowed for the same reasons. By virtue of dependency, claims 2-12, 14-16 and 18-19 should also be allowed. Withdrawal of the rejections of those claims and an allowance of claims 1-23 is respectfully requested.

Claims 4, 13-15 and 19 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Usui, Mack, Teitelbaum, Picone and further in view of Sadovnik (U.S. Patent No. 5,497,430).

Usui, Mack, Teitelbaum and Picone are discussed above. Sadovnik is directed to operating an image recognition system including providing a neural network including a plurality of input neurons. However, Applicants submit that Sadovnik fails to cure the deficiencies discussed above regarding claim 1.

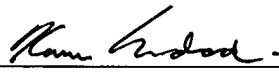
Based at least on the above, Applicants submit that the cited references fail to disclose or suggest all of the features recited in claims 4, 13-15 and 19. Accordingly, withdrawal of the rejection under 35 U.S.C. 103(a) is respectfully requested.

Applicants submit that each of claims 1-23 recites features that are neither disclosed nor suggested in any of the cited references. Accordingly, it is respectfully requested that each of claims 1-23 be allowed and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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Enclosure: Additional Claims Transmittal
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